BCDA Activities – Feb 05

Highlights

- Access Grid installed and working at 2BM.
- Ported saveData to Solaris and Linux targets.
- Posted autosave, calc, optics, std, ip, and sscan modules.
- Interviewed candidates for SPEC support position.
- Enhanced EPICS interface to 8-ID BLEPS with FAULT status display and vacuum valve control.

Specific beamline/XOR support

XOR-1:

- Replaced two RS232/485 converters and one failed Love controller in ioc1ida.
- Sector 1ID reported they had a problem accessing catcher from MEDM screen. Restarting the MEDM session fixed the problem. Showed Wai-Keat Lee how to access the mda files through scanSee, they are still using catcher to save scan data.
- Writing/testing motor record device support for the PI C-630 controller
- Wrote EPICS support for the LakeShore 218 8-channel temperature monitor
- Installed and tested LakeShore 218 support in ioc1id
- Updated, installed and tested remote/auto shutter controls
- Diagnosed a saveData problem at 1id. saveData wasn't allowing changes to the file-system PV because it thought a scan was in progress.

XOR-2

- Francesco De Carlo reported that burtrwb from the solaris-sparc bin did not work. Verified the problem and updated the burt directory and rebuilt for base R3.14.5. Now it works fine from solaris-sparc bin.
- Worked with Dan Legnini to created the newest version of scanSee.R3.4.1 with key modifications done in order to better support the real-time simulation for their 2D/3D scan.
- Sector2IDD reported that data catcher sometime crashes during the middle of scan which was using the new ezcaIDL sharable library built with R3.14.5. After we switched the environment setting back to the last quarter's run, they reported the crash problem goes away.
- Assisted Z.H. Cai from 2IDD in generating ascii report for their user. He also asked a new feature of automatically generating all ascii reports for all 1D/2D MDA files from the same data directory for easy data export for users.
- 2IDB had problems running their own IDL program under IDL 6.1 with ezcaIDL library built with EPICS base R3.14.5. By switching back to the last runs environment setting, their problem is resolved.

- Diagnosed a problem in 2bma/b involving motors and slits. They added a motor controller board to 2bmb, but didn't increase the number of boards they told the driver to allocate space for. Also, they moved a slit database from 2bma to 2bmb, but didn't change the motors it was driving. This caused 2bmb to lose its network connection. Running slit software in one ioc to control motors hosted by another ioc is not recommended, but it should not have such drastic consequences.
- Configured 2xfm's serial software for synApps_5_1beta

XOR-3:

- Worked with Harald Sinn to investigate a problem they were having with their lab laser interlock system. This involved reverse-engineering a custom circuit and recommending an alternative solution. This solution was reviewed by the appropriate safety people and successfully implemented.

XOR-4:

- Investigated unresolved Love controller problem.

MHATT-CAT - Sector 7:

- Helped 7IDD to resolve the problem that they could not save any new scan. It was found out that they accidentally entered a number of negative NPTS in a 1D scan, then a giant junk mda file was created and the saveData function did not work. Also helped them to download the newest version scanSee R3.4.1 and now they are running scanSee R3.4.1 with IDLVM

IMMY-CAT - Sector 8:

- Tested NextStep microsteppers in the BCDA lab. Investigated noise problems and worked on solutions.
- Designed a custom socket for the limits PAL on the OMS board. This socket has a small circuit board with filter caps on it. This is what we determined would be needed to stop spurious limit trips caused by chopping noise from the NextStep
- 8-ID: Designed EPICS Inputs to BLEPS.
    - This interface allows EPICS control of vacuum valves and a fault clear function.
- 8-ID: Added BLEPS fault indicators to EPICS screen
- 8-ID-G: Configured IOC for five Standford Research System PreAmp (SR570) units.
- 8-ID-G: Created GPIB version of Kepco BOP20-10 power supply interface
- 8-ID-G: Worked with P. Fuesz to design connectors (serial and power) for JJ Xray 4 motor slit stage.
- 8-ID-E: Based on feedback from M. Sutton and M. Holt worked on New Focus picomotor driver to improve closed-loop performance.
- Continues adding device support for the Epix frame grabber board into the CCD Image Server. Got most features to work, but there are still some glitches. The camera has gone back to Northern for some engineering in preparation for using it for an experiment in March. When it returns to the APS, we hope to fix some of the remaining problems.

BIOCARS – Sector 14:

- Assisted Robert Henning on questions about scanSee, he requested a few new features like assigning detector display name, startup automatically with 70 detector mode.

IMCA-CAT - Sector 17ID:

- Tested their remote shutter (autoshutter) system. Communicated progress to PSS personnel, and asked them to test their end.
- Returned to investigate an autoshutter malfunction. It turned out that they needed to be monitoring the BLEPS permit as well as the ACIS permit.

BIOCAT – Sector 18:

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GM/CA – Sector 23:

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NANOCAT – Sector 26:

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UNICAT – Sector 33:

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XFD:

Assisted Abu Saleem Khaliefeh by showing how to pass X,Y vectors to plot2d program through using scanSee object methods.

General

Heading

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Love controller software:

- Acquired all the necessary hardware and made cables to test the Love controllers.
- Verified that both RS232 and RS485 IP modules work.
- Started migrating Love controller software to IPAC 2-8 and ASYN 4-2.
- Developed the "Interpose Interface" layer that resides between EPICS device support and the ASYN port driver.

Prepared and presented "Getting Started with EPICS " motor record talk.

Helped Marty Kraimer resolve the "variable arguments with Power PC" problem

Investigated motor record changes to support the Canadian Light Source's "EPICS VME Crate Monitor Software" at the request of an APS beamline scientist. This would allow CLS to use the motor record.

Assisted Steve Shoaf from ASD Controls in resolving problem encountered on running IDL imageCatcher which failed to access CA calls from the new ezcaIDL library.

BEAMS system update

- Switched beams users back to environment used in last run
- Rebuilt burt tools with EPICS baseR3.14.5 for solaris-sparc
- Download and built epics base-3.14.7 on beams server
- Built ezca, EzcaScan, ezcaIDL test library with base-3.14.7

SCANSEE R3.4.1

- Monitored 2IDE's 2D/3D real-time scans and further developed the real-time scan simulation in scanSee.R3.4.1 such that it can more efficiently display the large 2D/3D image, also provided logic to treat step scan and fly scan differently
- Modified the scan reader routine in sscan.pro by default the 3D array is not read unless the user explicitly requested it
- Installed sscan.pro, SB2.sav, sscan3_4_1.sav on beams solaris and sloaris-sparc bin, prepared download files and updated web pages

Wrote and presented a talk on BCDA hardware for cross training.

Continued working the soft-motor init problem from last month.
Worked on the STAT=UDF problem in record initialization.

Summarized sscan-record plotting options in response to a tech-talk question.

Ported saveData to Solaris and Linux targets. On other than vxWorks, saveData will not try to manage its NFS mount, but will work only with mounted file systems.

Continued working autosave related problems with Mark Rivers. Fixed a bug in autosave that was preventing it from accessing its status PV's. PV names were built using strncat, but the information limiting string lengths was completely wrong -- evidently strlen() calls were copied from some other section of code and incompletely modified for their new context. Modified autosave to agree with new PV-name lengths in EPICS 3.14.

Updated documentation and cvs commits to BCDA web pages for autosave, calc, optics, std, ip, and sscan modules.

Searched for software to convert 'cvs log' output into something useable in release notes. Downloaded, tested, and still do not understand 'chalogen', free perl software intended for converting the output of 'cvs report' commands to a human readable change log. The main problem is that there is essentially no documentation on what the command options are intended to do, or how to supply information they require. So I'm still doing this stuff with nedit macros.

Built test user trees for Solaris and Linux. Tested calc and sscan modules

on Solaris and Linux ioc's.

Built asyn 4.2 in synApps 5.1, and rebuilt everything that depends on it.

Working on talks: scans (for EPICS class), optics (cross training), and synApps (presentation to mgmt).

Fixed sscanRecord before-scan link. It wasn't working in NoWait case.

Worked with David Maden to resolve some autosave v3.5 problems at the Swiss Light Source

Got latest DXP software running on an EPICS brick ioc for control of a Vortex detector.

Interviewed candidates for SPEC support position.

Worked with Controls group on more secure method of accessing the IRMIS hardware database with the BCDA record editor.

Acted as a reviewer for the ASD Embedded EPICS Communications Interface Design Review.

CCD Image Server

- Started working on the backlog of bugs/features people have asked eradicated/added.
- Upgraded to use the new version of Simple Server API which is based on EPICS base 3.14.6. Except for the image buffer PV—which is an array PV—everything appears to be working fine.
- A problem cropped up when IT added the password locking screensaver to all the windows desktops. Especially on XP, the Image Server would crash as soon as the screen saver activated—thus killing acquisition. Turns out the mouse context was going away when the screen saver came on and I was not trapping for that exception. Now I track exceptions for the absence of the mouse. I don't do anything with the exception, but the program keeps running while the computer is locked out and all returns to normal as soon as the screen saver is exited.

EPICS Builds

- Upgraded Simple Server API (PCAS interface) to EPICS 3.14.6. Got everything working except array support. For some reason client complains about trying to connect to array PVs with the 3.14 build.

Access Grid

- Got the access grid installed and working at 2BM. Spent a lot of time playing around with various features trying to better understand what's capable and what's not. At one point we had the Venue server working with all it's default functionality (Audio, Video, shared browser, shared presentation, shared data,

etc…) plus the added functionality of a VNC server supplied through the AG. Then we broke the VNC server somehow. There have been a couple of problems with the venue clients not working properly as well, but I believe this is due to conflicts with earlier installed versions of the venue client and we're slowly recovering from these issues as well. We are not yet able to access the grid from outside the firewall.